BIODEGRADASI PEWARNA METILEN BIRU OLEH *Daedalea dickinsii*

Nama : **Hamdan Dwi Rizqi**
NRP : **1410 100 065**
Jurusan : **Kimia FMIPA - ITS**
Dosen Pembimbing : **Adi Setyo Purnomo, M.Sc., Ph.D**

Abstrak

Telah dilakukan penelitian tentang biodegradasi pewarna tekstil metilen biru (MB) oleh *Daedalea dickinsii* dengan tujuan untuk mengetahui kemampuan *D. dickinsii* dalam mendegradasi MB. Degradasi dilakukan pada media cawan agar *potato dextrose agar* (PDA) dengan variasi konsentrasi MB 50, 75, dan 100 mg/L. *D. dickinsii* mampu mendegradasi MB pada media PDA dengan indeks dekolorisasi yaitu 0,92; 0,90; 0,88 pada konsentrasi MB secara berurutan 50, 75, dan 100 mg/L. Konsentrasi MB 100 mg/L dipilih untuk biodegradasi pada media cair *potato dextrose borth* (PDB). *D. dickinsii* mampu mendegradasi MB sebesar 21,20%; 24,64%; dan 53,55% setelah diinkubasi secara berurutan selama 0, 7, dan 14 hari. Dari proses degradasi MB oleh *D. dickinsii* selama 14 hari dihasilkan metabolit produk berupa $C_{15}H_{16}N_3S$ *(3-(dimethylamino)-7-(methylamino)phenothiazine)*, $C_{16}H_{19}N_3SO$ *(3,7-bis(dimethylamino)-4a*H*-phenothiazin-5-one)* dan $C_{16}H_{21}N_3SO$ *(4-(dimethylamino)-2-[*m*-(dimethylamino)phenylsulfinyl]benzen amine)*. Penelitian mengindikasikan bahwa *D. dickinsii* dapat digunakan untuk mendegradasi pewarna MB.

Kata kunci: Biodegradasi, dekolorisasi, Metilen biru, Daedalea dickinsii.

BIODEGRADATION OF METHYLENE BLUE DYE BY *Daedalea dickinsii*

Name : **Hamdan Dwi Rizqi**
NRP : **1410 100 065**
Department : **Kimia FMIPA - ITS**
Supervisor : **Adi Setyo Purnomo, M.Sc., Ph.D**

Abstract

The biodegradation ability of *Daedalea dickinsii* to degrade methylene blue (MB) dye had been investigated. The degradation was done in potato dextrose agar (PDA) medium with addition of variation concentration of MB at 50, 75, and 100 mg/L. *D. dickinsii* had ability to degrade MB with decolourization index 0.92, 0.90, and 0.88 for concentration of MB at 50, 75, and 100 mg/L, respectively, in PDA medium. MB concentration at 100 mg/L was selected for biodegradation in liquid potato dextrose borth (PDB) medium. *D. dickinsii* degraded 21.20%, 24.64%, and 53.55% of MB after incubated for 0, 7, and 14 days. From14 days incubation, $C_{15}H_{16}N_3S$ *(3-(dimethylamino)-7-(methylamino) phenothiazine),* $C_{16}H_{19}N_3SO$ *(3,7-bis(dimethylamino)-4a*H*-phenothiazin-5-one)* and $C_{16}H_{21}N_3SO$ *(4-(dimethylamino)-2-[*m*-(dimethylamino)phenylsulfinyl]benzen amine)* were produced by *D. Dickinsii* as metabolite products of MB degradation. This study indicated that *D. dickinsii* can be used to degrade MB dye.

Keywords: Biodegradation, Decolourization, Methylene blue, Daedalea dickinsii.